Fall 2019

MATH 545-001: Introductory Mathematical Analysis

A. Bose

NJIT New Jersey's Science & Technology University

THE COLLEGE OF SCIENCE AND LIBERAL ARTS

THE DEPARTMENT OF MATHEMATICAL SCIENCES

MATH 545: Introductory Mathematical Analysis
Fall 2019 Graduate Course Syllabus

NJIT Academic Integrity Code: All Students should be aware that the Department of Mathematical Sciences takes the University Code on Academic Integrity at NJIT very seriously and enforces it strictly. This means that there must not be any forms of plagiarism, i.e., copying of homework, class projects, or lab assignments, or any form of cheating in quizzes and exams. Under the University Code on Academic Integrity, students are obligated to report any such activities to the Instructor.

COURSE INFORMATION

Course Description: Rigorous treatment of the calculus of real-valued functions of one real variable: the real number system, epsilon-delta theory of limit, continuity, derivative, and the Riemann integral. The fundamental theory of calculus. Series and sequences including Taylor series and uniform convergence. The inverse and implicit function theorems.

Number of Credits: 3

Prerequisites: MATH 211 or MATH 213, and departmental approval.

Course-Section and Instructors

Course-Section	Instructor
Math 545-001	Professor A. Bose

Office Hours for All Math Instructors: Fall 2019 Office Hours and Emails

Required Textbooks:

Title	*Introduction to Real Analysis*
Author	W. Trench
Edition	Digital Version
Publisher	Digital Commons@Trinity
ISBN #	---
Notes	**SEARCH** *trench introduction to real analysis* for a pdf file

Course Assessment Criteria: Outcomes are assessed through class participation, homework assignments, two midterm exams, and a comprehensive final exam.

University-wide Withdrawal Date:The last day to withdraw with a **W** is **Monday, November 11, 2019**. It will be strictly enforced.

POLICIES

DMS Course Policies: All DMS students must familiarize themselves with, and adhere to, the Department of Mathematical Sciences Course Policies, in addition to official university-wide policies. DMS takes these policies very seriously and enforces them strictly.

Grading Policy: The final grade in this course will be determined as follows:

Homework	20%
Midterm Exams (2)	50%
Final Exam	30%

Your final letter grade will be based on the following tentative curve.

A	88 - 100	**C**	60 - 68
B+	82 - 87	**D**	55 - 59
B	75 - 81	**F**	0 - 54
C+	69 - 74		

Attendance Policy: Attendance at all classes will be recorded and is **mandatory**. Please make sure you read and fully understand the Math Department's Attendance Policy. This policy will be strictly enforced.

Homework Policy: Homework assignments will be given frequently. Assignments will be posted on Moodle. Each assignment must be handed in at the beginning of class on the due date. Late assignments are NOT accepted. Solutions will be graded for correctness, completeness, and clarity.

Exams: There will be two midterm exams held in class during the semester and one comprehensive final exam. Exams are held on the following days:

Midterm Exam I	October 17, 2019
Midterm Exam II	November 21, 2019
Final Exam Period	December 14 - 20, 2019

The final exam will test your knowledge of all the course material taught in the entire course. Make sure you read and fully understand the Math Department's Examination Policy. This policy will be strictly enforced.

Makeup Exam Policy: To properly report your absence from a midterm or final exam, please review and follow the required steps under the DMS Examination Policy found here:

- http://math.njit.edu/students/policies_exam.php

Cellular Phones: All cellular phones and other electronic devices must be switched off during all class times.

ADDITIONAL RESOURCES

Accommodation of Disabilities: Disability Support Services (DSS) offers long term and temporary accommodations for undergraduate, graduate and visiting students at NJIT.

If you are in need of accommodations due to a disability please contact Chantonette Lyles, Associate Director of Disability Support Services at 973-596-5417 or via email at lyles@njit.edu. The office is located in Fenster Hall, Room 260. A Letter of Accommodation Eligibility from the Disability Support Services office authorizing your accommodations will be required.

For further information regarding self identification, the submission of medical documentation and additional support services provided please visit the Disability Support Services (DSS) website at:

- https://www.njit.edu/studentsuccess/accessibility/

Important Dates (See: Fall 2019 Academic Calendar, Registrar)

Date	Day	Event
September 3, 2019	T	First Day of Classes
September 13, 2019	F	Last Day to Add/Drop Classes
November 11, 2019	M	Last Day to Withdraw
November 26, 2019	T	Thursday Classes Meet
November 27, 2019	W	Friday Classes Meet
November 28-29, 2019	R-F	Thanksgiving Recess
December 11, 2019	W	Last Day of Classes
December 12, 13 2019	R & F	Reading Days
December 14-20, 2019	F – R	Final Exam Period

Course Outline

Topic
1.1-1.2: Real numbers & mathematical induction
1.3-2.1: Real numbers and limits
2.1-2.2: Limits and continuity
2.3: Mean Value Theorem
2.4: L'Hospital's Rule
2.5: Taylor's Theorem
MIDTERM (OCTOBER 17)
3.1: Integrals
3.2-3.3: Properties of the integral
3.4-4.1: Improper integrals and sequences
4.1: Sequences and review
4.2: Sequences
MIDTERM (NOVEMBER 21)
4.3: Infinite series
4.3-4.4: Sequences and series of functions
4.4-4.5: Power series
FINAL EXAM REVIEW

Updated by Professor A. Bose - 9/13/2019